IN THE SPECIFICATION

Pages 12-13, the paragraph bridging these pages from page 12, line 9, to page 13, line 10, amend the paragraph as follows:

A movable core 1 is composed of a plunger 5 extending through the coil on the center axis thereof, and a ~~dick-like~~ disc-like steel plate 6 secured to one end part of the plunger 5, and is coupled to a load W by means of a nonmagnetic coupling member 7 secured to an end part of the plunger 5. The load W effects a force which urges the movable iron core ~~10~~ 1 upward under attraction of the electromagnet 10. A stationary iron core 2 is composed of a steel pipe 2a, a convex steel member 2b and a ring-like steel plate 2c which are all magnetic. The convex steel member 2b and the ring-like steel plate 2c may be attached in such a manner that they are screwed into opposite ends of the steel pipe 2a, as shown. Alternatively, they may be secured by welding. Further, the steel pipe 2a and the convex steel member 2b, or the steel pipe 2a and the ring-like steel plate 2c may be produced from a columnar material by cutting. Although, the convex steel member 2b is used in this ~~embodimetn~~ embodiment, instead thereof, a mere planar plate may be used. However, in this case, it has been found that if a gap X between the end face of the plunger 5 and the stationary iron core 2 is present in the vicinity of the center of the coil 3, leakage fluxes can

be reduced, and accordingly, the convex steel member is more preferable. Further, the convex steel member 2b may be formed in one unit body, or may be formed of two steel plates which are joined to each other. The coil 3 is composed of a bobbin 3a made of insulator or nonmagnetic metal (aluminum, copper or the like), and windings 3b.

Page 13, first paragraph, lines 11-26, amend the paragraph as follows:

The ring-like steel plate 2c is screwed into the steel pipe 2a, being relatively deep therein, and has a configuration formed with a magnetic protrusion 4. In this embodiment, the electromagnet 10 has such a configuration that the end face of the plunger 5 and the convex steel member 2b, and the disc-like steel plate 6 and the protrusion 4 are opposed in the same direction, respectively. The distance g between the side surface of the plunger ~~15~~ 5 and the ring-like steel plate 2c is shorter than the stroke length of the movable iron core. The distance X between the end face of the plunger 5 and the convex steel member 2b is set to be shorter than a distance L between the disc-like steel plate 6 and the protrusion 4, and upon completion of attraction, the plunger 5 and the convex steel member 2b are made into contact with each other.

Pages 13-14, the paragraph bridging these pages from page 13, line 27, to page 14, line 10, amend the paragraph as follows:

A ring-like permanent magnet 12 is located in a zone defined by the plunger ~~12~~ 5, the disc-like steel plate 6, the protrusion 4 and the ring-like steel plate 2c, and is secured on the ring-like steel plate 2c. Reference numeral 13 denotes a retainer which is made of nonmagnetic material such as SUS, for the permanent magnet 12, and which is secured by being screwed into the steel pipe 2b. A gap is defined between the permanent magnet 12 and the protrusion 4 by the retainer 13 in order to prevent magnetic fluxes produced by the permanent magnet 12 from being short-circuited by the protrusion 4.

Page 14, first paragraph, lines 11-26, amend the paragraph as follows:

Explanation will be made of the electromagnet 10 in this embodiment of the present invention with reference to Figs. 2 to 5 in which Fig. 2 shows a condition ~~juste~~ just after a start of attraction, Fig. 3 shows a condition just before completion of attraction, Fig. 4 is a condition just after completion of attraction and Fig. 5 is a condition during release operation.

Pages 14-15, the paragraph bridging these pages from page 14, line 19, to page 15, line 8, amend the paragraph as follows:

When the coil 3 is energized by an external power source circuit (which is not shown), an attraction force FO is effected at the end face of the plunger, and accordingly, the movable iron core 1 starts its downward motion. At this time, a distance g between the side surface of the plunger 5 and the ring-like steel plate 2c is set to be shorter than the stroke length of the movable iron core 1, a magnetic field Bc produced by a coil current passes through a magnetic path 01. It is required ~~t~~ that the direction of the coil current and the polarity of the permanent magnet 12 have been previously set so that the magnetic field Bc and a magnetic field Bm produced by the permanent magnet 12 are extended in a direction indicated by the arrow shown in Fig. 2. It is noted that the directions of the magnetic field Bc and the magnetic field Bm may be reversed from each other, simultaneously.

Pages 16-17, the paragraph bridging these pages from page 16, line 11, to page 17, line 2, amend the paragraph as follows:

Explanation will be made of release operation with reference to Fig. 5. The release operation is effected by passing a current through the coil 3 in a direction reverse to

that of the current applied during the attracting operation. A magnetic field produced by this coil current runs through the magnetic path 02 so as to cancel out the magnetic field Bm produced by the permanent magnet 12. Accordingly, the attracting force FO exerted to the end face of the plunger 5 is decreased, and therefore, the movable iron core 1 is moved upward by a load force. It is noted that since an attracting force Fr is effected between the disc-like steel plate 6 and the protrusion 4 by the magnetic field Bc at the same time, should excessive current be applied to the coil 3, attracting operation would possibly be again effected. Thus, it is required to provide a means for limiting the coil current through a balance with the load ~~forcer~~ force, and for cutting off the coil current at once after completion of the release operation.

Page 20, first paragraph, lines 1-7, amend the paragraph as follows:

Explanation will be made of the operation of the electromagnet 10 in this embodiment with reference to Figs. 6 to ~~9~~ 8 which are sectional views illustrating the electromagnet 10, reference numerals for explaining the structure thereof being indicated in the right side part of the figure while a configuration of magnetic fields is shown in the left side part thereof.

Page 25, first paragraph, lines 4-24, amend the paragraph as follows:

The stationary iron core is composed of a square planar plate ~~2d~~ 2a which is a stationary iron core upper member configured to cover one of the opposite end surface of the coil 3, and which is formed in its center part with a circular opening concentric with the coil 3, a square planar plate 2f which is a stationary iron core lower member configured to cover the other of the opposite end surfaces of the coil, and which is formed in its center part with a circular opening concentric with the coil 3, and a steel pipe 2e which is held between the two square planar plates ~~2d~~ 2a, 2f and which covers the outer peripheral surface of the coil 3, a cylinder 2g which arranged on the upper surface of the square planar plate 2f, concentric with the steel pipe 2e. The square planar plate ~~2d~~ 2a, the square planar plate 2f, the steel pipe 2e, and the cylinder 2g are all made of magnetic materials. The square planar plate 2f and the cylinder 2g are fixed together by screws, but may be welded together. Further, they may, of course, be integrally formed by cutting one and the same material.

Pages 25-26, the paragraph bridging these pages from page 25, line 25, to page 26, line 12, amend the paragraph as follows:

A disc-like permanent magnet 12 formed at its center with a circular opening is arranged on the square planar plate ~~2d~~ 2a, being attracted thereto, and is secured thereto with an adhesive. The permanent magnet 12 may be made of any one of a material of a neodymium group, a samarium group, an alnico group, a neodymium bond group and a ferrite group. Further, although the permanent magnet 12 as shown is a single ring magnet, it should not be in an integral ring-like shape, but planar magnets having different shapes such a rectangular shape, a circular shape or the like may be distributed on the square planar plate ~~2d~~ 2a. However, even in this case, it is required to set the areas of the surfaces of the magnets opposed to a cylindrical planar plate 6a which will be detailed later so as to effect a required attracting force.

Pages 26-27, the paragraph bridging these pages from page 26, line 13, to page 27, line 11, amend the paragraph as follows:

The movable iron core is composed of a nonmagnetic rod 19 piercing through the opening of the square planar plate ~~2d~~ 2a, the opening of the square planar plate 2f, the steel pipe 2e

and the cylinder 2g at their centers, a magnetic cylindrical plunger ~~15~~ 5 fitted on and fixed to the rod 19, and the magnetic cylindrical planar plate 6a which is arranged on the upper side of the plunger 5 through the intermediary of a thin plate 21 which is a magnetic member and which is fixed to the rod 19. The lower surface of the cylindrical planar plate 6a is opposed to the upper surface of the square planar plate ~~2d~~ 2a with the permanent magnet 12 intervening therebetween, and the outer peripheral surface of the plunger 5 is opposed to the inner peripheral surface of the coil 3. That is, the outer diameter of the plunger 5 is smaller than any of the inner diameter of the coil 3, the diameter of the center opening of the permanent magnet 12 and the diameter of the center opening of the square planar plate ~~2d~~ 2a, and accordingly, it can axially ~~movable~~ move therethrough. However, the outer diameter of the cylindrical planar plate 6a is larger than the diameter of the center opening of the permanent magnet 12, and accordingly, it can not pass through the center opening of the permanent magnet 12. Further, the plunger 5 and the cylindrical planar plate 6a are secured to the rod 19, threadedly or by means of a retainer.

Page 27, first paragraph, lines 12-19, amend the paragraph as follows:

Further, the center opening of the permanent magnet 12 and the center opening of the square planar plate ~~2d~~ 2a are concentric with each other and have an equal diameter. Further, the thickness t of the permanent magnet 12 is set to be larger than the gap g1 between the inner peripheral surface of the center opening of the square planar plate ~~2d~~ 2a and the outer peripheral surface of the plunger 5.

Page 28, first paragraph, lines 3-15, amend the paragraph as follows:

A nonmagnetic pipe 15a (which is made of stainless steel in this embodiment) is arranged on the upper side of the permanent magnet 12, concentric with the coil 3, and is held between the permanent magnet 12 and a square planer plate 18 which may be made of magnetic or nonmagnetic materials. Holes are formed in the four corners or two diagonal corners of the square planar plate 2f, the square planar plate ~~2d~~ 2a and the square planar plate 18. The holes can receive therethrough rods 14 having their opposite end parts formed with threads. By fastening the opposite end parts of the rods 14 with nuts, there are all fixed together.

Pages 29-30, the paragraph bridging these pages from page 29, line 20, to page 30, line 10, amend the paragraph as follows:

Further, by changing the number of thin plates 21, the gap g2 is decreased to a small value which is possibly zero so as to decrease the magnetic resistance in order to increase the attraction force. As a result, even though the permanent magnet 12 is thinned, or even though the bulk of the permanent magnet 12 is reduced by decreasing its outer surface for attracting the square planar plate ~~2d~~ 2a, a conventional attracting force can be ensured. Thus, the cost of the permanent magnet 12, which greatly depends upon the bulk of the permanent magnet, can be reduced, thereby it is possible to provide a small-sized and inexpensive electromagnet. Further, by changing the number of thin plates 21, the gap ~~2g~~ g^2 in a turn-on condition can be set to a nearly desired constant value, the attraction force and the turn-on and -off characteristics of the permanent magnet can be stabilized, thereby it is possible to enhance the reliability of the permanent magnet.

Page 33, second paragraph, lines 6-20, amend the paragraph as follows:

In this embodiment, an electromagnet 10 stated in the embodiment 1 to the embodiment 3 is applied in an actuating

mechanism for a switching device. Fig. ~~9~~ 13 is a lateral sectional view for a three-phase switching device 20 in which the electromagnet 10 stated in the embodiment 2 is applied. Although explanation will be made of the vacuum switching device in this specification, the permanent magnet 10 according to the present invention can be applied in other circuits breakers including a gas switching device. Further, while explanation will be made of such an arrangement that the electromagnet 10 stated in the embodiment 2 is applied, the electromagnet stated in the embodiment 1 or the embodiment ~~2~~ 3 may be also applied.

Page 35, second paragraph, lines 8-27, amend the paragraph as follows:

The press contact spring 43 is incorporated in an insulator rod 63. Fig. ~~10~~ 14 shows a structure around the press contact spring 43. The movable conductor 36 is fixed to a connecting member 43b, and the connecting member 43b is coupled to a press contact spring holder 43a by means of a pin 43c. A hole having a diameter slightly larger than that of the pin ~~43~~ 43c is formed in the connecting member 43b, and an elliptic hole 43d is formed in the press contact spring holder 43a. During turn-on operation, when the stationary contact ~~3~~

37 and the movable contact 38 are made into contact with each other, the pin 43c starts its movement in the elliptic hole 43d (downward direction in the figure), so as to continuously compress the press contact spring 43 until the turn-on operation is completed. Meanwhile, the turn-off spring 45 is continuously held between a top plate 46 of the operating mechanism 40 and a plate 47 fixed to the connecting member 9. The turn-off spring 45 is always compressed during turn-on operation.